

SCHOOL OF ENGINEERING AND COMPUTER SCIENCE

General Information

Mission

The mission of the School of Engineering and Computer Science (ECS) is to provide a superior education through instruction, scholarship, and service that prepares graduates for professional practice and responsible leadership with a Christian worldview.

The mission of the School of Engineering and Computer Science results in the following goals:

- To foster an educational environment that promotes students success;
- To support faculty and staff commitment for achievement in teaching, scholarly pursuits, professional development and service contributions;
- To promote Christian values and community;
- To be nationally recognized for quality engineering and computer science programs.

History

In 1973, the first computer science faculty member joined the Department of Mathematics to teach and develop programs in computer science; and by 1974, both the Bachelor of Science and the Bachelor of Arts degrees in computer science were offered by the Department of Mathematics.

During the 1978-79 academic year, the University approved the formation of the Institute of Engineering Science to offer an engineering degree within the College of Arts & Sciences. The Institute became operational with its first director in the fall of 1979.

In June 1980, the Computer Science Program in the Department of Mathematics was combined with the Engineering Science Program in the Institute of Engineering Science to form the Department of Engineering and Computer Science. The Department grew rapidly and in February 1982, the Baylor Computer Science Program gained national recognition by winning the International Scholastic Programming Contest.

In 1985, the master of science degree in computer science was offered for the first time at Baylor and, in that same year, the Baylor bachelor of science degree in Computer Science was one of only fifty programs to be accredited by the Computer Science Accreditation Commission, Inc. (CSAC) of the Computer Science Accreditation Board (CSAB), the national accrediting agency for computer science programs.

In the summer of 1988, the Department of Engineering and Computer Science moved into the newly constructed Rogers Engineering and Computer Science Building, which was built specifically to support the engineering and computer science programs. In 1989, the Engineering program was accredited by the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET), the national accrediting agency for engineering programs.

The School of Engineering and Computer Science was established in 1995, with its two departments, the Department of Computer Science and the Department of Engineering.

In 1998, the Board of Regents approved the bioinformatics major. The purpose of this multidisciplinary program was to combine computer science with other programs that need to process large amounts of data.

In 2001, EAC/ABET granted separate accreditation of the Department of Engineering's three baccalaureate programs: Electrical and Computer Engineering, Mechanical Engineering, and Engineering.

In 2004, Baylor's Board of Regents approved the introduction of four new masters programs in the Department of Engineering.

The Department of Engineering was reorganized into two departments, the Department of Electrical and Computer Engineering and the Department of Mechanical Engineering, in 2005.

In 2010, the Board of Regents approved the doctoral program (Ph.D.) in Electrical and Computer Engineering.

In 2013, the Board of Regents approved the doctoral program (Ph.D.) in Mechanical Engineering. This same year the General Engineering major was restructured and enhanced to include the choice of four concentrations (biomedical, geo-petro, environmental, and humanitarian engineering) and a minor option.

In 2016, the Computer Science doctoral program (Ph.D.) was approved.

Facilities

The School of Engineering and Computer Science (ECS) calls several buildings across campus home including the Rogers Engineering and Computer Science Building, Hankamer/Cashion Academic Centers, Teal East Village Residential College, home of the ECS Residential College, Baylor Research and Innovation Collaborative, and the Engineering and Computer Science Annex.

ECS Classrooms include full audio-visual capabilities allowing faculty and students the ability to have interactive classroom presentations with the capability to facilitate remote learning as needed. The Computer Science department has also upgraded two of their spaces to be a fully flexible learning space, including multiple monitors around the room allowing students to meet and collaborate on group projects.

Teal Residential College

Teal Residential College is an intentionally designed living-learning program for students pursuing a degree in Engineering, Computer Science, Informatics, or Nursing. As a member of Teal, students will find a community focused on academic excellence and spiritual growth, a place to build meaningful relationships with other students and faculty, opportunities to engage in leadership outside of the classroom, and exciting programs and events that challenge and support student development. Teal is conveniently located near East Village Dining Commons, McLane Student Life Center, Baylor Sciences Building, and Elliston Chapel. With a variety of residential rooms and common spaces that cater to the lifestyle of an ECS student (media room, tech lab, library, and study spaces), students at Teal have a community supported by a live-in Faculty Steward and full-time staff members who facilitate a positive experience inside and outside of the classroom.

Career Center

The mission of the Engineering and Computer Science Career Center is to ensure each student has the opportunity and support to achieve their career potential. Our office is committed to the idea that every ECS student at Baylor University will have access to career resources as well as dedicated career professionals based on their specific major.

We regularly share information such as job placement, graduate school placement, student career success, average salaries, major employers, and career profiles of each graduating class to students, staff, faculty and key stakeholders. There is a strong push to actively increase student ownership and engagement in their career success as they move towards graduation. The programs provided by the Baylor University Career Center will facilitate greater connection to employers and Baylor alumni in support of the student's career progression towards internships, full-time employment, and graduate school.

Laboratory Support

All students taking an ECS class have access to general campus computing as well as additional discipline specific labs available only to ECS students. These labs include a full suite of software specific to the needs of our courses. Access to the labs is available 24 hours a day, 7 days a week by using your Baylor ID Card, with some spaces specifically reserved project work. Wireless internet is available throughout ECS facilities and easy to access power is provided in many of our common areas.

The Computer Science department maintains computer labs, studio spaces and a collection of Linux servers which are available based on enrollment. The computer labs are all configured with the same base software install allowing students the ability to move around between labs based on class schedules and lab availability. Some classes have designated meeting times in the lab to allow the faculty member time to interact with students in the lab to assist with projects and group work.

Several studio spaces are dedicated for use by the Senior Capstone class in which students have full control of the systems to allow them to design and develop their project without limitations.

The Engineering departments have seven well equipped labs that support the learning outcomes as well as the hands-on portion of the curriculum. Several of the labs include dedicated hardware for data acquisition, analyzing signals and building components to help the students learn. The departments are also expanding their additive manufacturing capabilities, allowing the students to turn their ideas into reality. Machine shop facilities and a machinist are also available for project and research work.

Support for ECS computing and technology resources is provided by dedicated group of full-time support staff and several student workers.

Course Repetition

Students taking a course in the School of Engineering & Computer Science will have a maximum of two attempts of any one ECS course to fulfill a prerequisite or requirement for a degree, major, or minor. Students pursuing an ECS major are allowed a maximum of 4 unsuccessful attempts of courses required for the degree to continue in the major. An insufficient earned grade or receiving a "W" notation counts an unsuccessful attempt. A course receiving a "W" notation for a semester in which the student withdraws from all courses is not counted as an unsuccessful attempt. Additional attempts will not be granted except by permission from the student's Dean (or his/her representative).

Class Attendance Policy

Class attendance is expected at all regularly scheduled course sessions. Faculty members may choose to have class attendance requirements and may also establish penalties for excessive absences or tardiness. The department chair and dean will endorse the attendance policies outlined in the instructor's syllabus. If an absence is unavoidable, due to a university-sponsored activity, illness, accident, or death in the family,

students are expected to make advanced or immediate contact with the faculty member to decide when to complete scheduled assignments and coursework.

Academic Advisement

To supplement the mentoring that students receive from faculty, they are required to meet with a professional staff advisor each semester before registering for classes. ECS advisors monitor progress toward graduation and make appropriate referrals. An advisor will review academic progress and student success resources with each student, as well as discuss course recommendations for the following semester. Beginning in the student's third year at Baylor, students are required to submit graduation plans to be reviewed by his or her advisor.

Honor Societies

Eta Kappa Nu National ECE Honor Society, Kappa Tau Chapter, Professor Adam Weaver, Advisor. Eta Kappa Nu, abbreviated HKN, is the national honor society for Electrical and Computer Engineering students. Baylor's group is the Kappa Tau Chapter. Membership is by invitation and is based on a review of the student's high academic record and character. Junior ECE majors in the upper one-fourth, and senior ECE students in the upper one-third, of their respective classes are eligible for consideration and election to HKN.

Pi Tau Sigma, Advisor, is the international honor society for mechanical engineering students. Baylor's chapter is the Baylor Beta Beta Chapter. Membership is by invitation and is based on a review of the student's high academic record and character. Junior ME majors in the upper one-fourth and senior ME students in the upper one-fourth of their respective classes are eligible for consideration and election to Pi Tau Sigma.

Upsilon Pi Epsilon, Dr. Gregory Speegle, Advisor, is an honorary computer science association that promotes high scholarship and original investigations in the branches of computer science. Membership in the Baylor chapter is composed of individuals whose academic achievements, reputations, and creative abilities deserve recognition. The chapter inducts members twice each year and assists fellow students in their academic pursuits.

Student Organizations

Amateur Radio Club at Baylor University

Patrick Hynan, Advisor

The Baylor Amateur Radio Club (BARC) provides educational opportunities for students concerning the scope of amateur radio and radio license acquisition, opportunities for public service during emergencies and local charitable activities, and an operable amateur radio station for members.

American Society of Mechanical Engineers

Dr. Kenneth Van Treuren, Advisor

Membership in the Baylor University student section of the American Society of Mechanical Engineers is open to all Baylor students who are student members of the American Society of Mechanical Engineers. The purposes of this section are:

1. to acquaint members with the goals and programs of ASME and to encourage participation in the activities of the Society, and
2. to sponsor and promote activities which will enhance the total educational experience of the members.

Association for Bioinformatics and Biotechnology

Dr. Mary Lauren Benton, Advisor

ABB is a student organization dedicated to helping build and foster common interests in Bioinformatics with those in the major and like-minded students. ABB provides members with:

1. a better understanding of Bioinformatics,
2. a network with other students, professors, and professionals in the field, and
3. support for scholarly success.

All these goals are achieved through meetings, attendance of symposia, and other social activities.

Association for Computing Machinery

Dr. Bill Booth, Advisor

ACM was organized and chartered in 1974. The student chapter assists members in maintaining a close, regular association with fellow students and faculty who are also interested in computing. In addition, the chapter sponsors the Baylor Programming Team which competes in the ACM Regional and ACM International Collegiate Programming Contests. Periodic meetings provide a combination of social interaction, professional dialogue, public service, and professional development. Membership is open to anyone with an interest in computing.

Baylor Build

Dr. Beth Lanning, Advisor

BUILD turns shipping containers into medical facilities. These will be sent overseas to Rwanda in Africa where 25,000 patients will be seen in a year and will be in use for over 15 years.

BU Cyber

Dr. Jeff Donahoo and Professor Shaun Hutton, Advisors

BU Cyber is an organization that focuses on fostering a community of individuals interested in cybersecurity, connecting them with industry professionals for future employment, and developing industry-related skills. Infosec is dedicated to helping students gain both the offensive and defensive aspects of cybersecurity. Members of Baylor Infosec have anywhere between no prior cybersecurity knowledge to advanced skills. The Baylor Cybersecurity competition team is composed of our most advanced members of BU Cyber. The goals of the organization are achieved through holding weekly meetings, facilitating hands-on applications, hosting security competitions, and other activities.

BUV at Baylor University

Dr. Douglas Smith Advisor

Baylor BUV is a humanitarian organization that provides undergraduate engineering students hands-on experience with design and construction of a Basic Utility Vehicle (BUV) for developing countries and mission activities.

Computing for Compassion

Dr. Jeff Donahoo, Dr. Bill Booth, Advisors

Computing for Compassion (C4C) serves compassion-based ministries through the appropriate application of computing solutions. Such solutions seek to magnify the capabilities of such ministries by solving their most frustrating problems. C4C enables students an opportunity to apply their technical skills to such mission work, gaining real-world experience along the way.

Engineers with a Mission

Professor Brian Thomas, Advisor

Engineers with a Mission (EM) is a unique Christian organization that envisions and mobilizes engineering students to serve the people of developing countries with their technical skills through appropriate technology projects and mission-oriented trips abroad.

Institute of Electrical and Electronics Engineers

Professor Steven Potter, Advisor

The Baylor University student branch of the IEEE is affiliated with the Institute of Electrical and Electronics Engineers, Inc., an international organization which is the world's largest technical professional society. Through projects, field trips, and meetings, the student branch fosters the professional growth of its members and promotes a closer relationship among students, faculty, and the engineering community. Student membership in the international IEEE organization is open to any student pursuing at least a half-time course of study in engineering, computer science, or a related field. Baylor student branch membership is open to any student member of the IEEE.

Microwave Theory and Techniques

Dr. Charles Baylis, Advisor

The Baylor University Student Branch Chapter of the IEEE Microwave Theory and Techniques Society (MTT-Society) is a subordinate of the international MTT-Society, which promotes "the advancement of microwave theory and its applications, including RF, microwave, millimeter-wave, and terahertz technologies." With support of dedicated faculty and sponsors, the Baylor Chapter of the MTT-Society strives to bring microwave lecturers to the Baylor campus to speak at least once a month, and MTT-Society members get the opportunity to meet these lecturers in a small group setting. Baylor Chapter membership is open to any student who is a registered member of the international IEEE and MTT-Society.

National Society of Black Engineers

Dr. Erik Blair, Advisor

The Baylor Chapter of the National Society of Black Engineers is dedicated to the academic and professional success of African-American engineering students and professionals. NSBE offers its members leadership training, professional development activities, mentoring opportunities, career placement services and more. The NSBE Torch symbolizes the organization's everlasting, burning desire to achieve success in this competitive society and to effect positive change in the quality of life of all people. Collegiate Membership is open to any undergraduate or graduate student enrolled in science, technology, engineering, or math (STEM).

Oso eSports

Patrick Clancy, Advisor

The purpose of Oso eSports is to promote and develop the emergence of eSports at Baylor University, leading to campus unity in video gaming and entertainment. We aim to achieve this purpose through three goals. First, have fun playing video games in order to encourage healthy stress release from rigorous examinations and academic coursework. Second, create a strong gaming and entertainment foundation through this special interest group of dedicated gamers. Third, create and bolster a competitive electronic sports team in order to compete against other colleges and universities with similar goals and identities.

SAE International

SAE International (formerly the Society of Automotive Engineers) has more than 121,000 members - engineers, business executives, educators, and students from more than 97 countries - who share information and exchange ideas for advancing the engineering of mobility systems. SAE is your one-stop resource for standards development, events, and technical information and expertise used in designing, building, maintaining, and operating self-propelled vehicles for use on land or sea, in air or space. The Baylor University Collegiate Chapter of SAE International is available to all students at Baylor who share a common interest in aerospace, automobiles, commercial vehicles, or motorsports. The organization provides opportunities to grow as an engineer and a professional through company tours, professional speakers, and student competitions. The Baylor Formula SAE team is currently in the process of designing, building, testing, and competing the first of many Formula SAE cars in future of Baylor SAE.

Baylor Aero

Dr. Anne Spence, Advisor

Baylor Aero provides students with an accelerated hands-on experience in mechanical and aerospace engineering. The club competes annually in the intercollegiate SAE Aero Design competition, in which students gain understanding of the aviation sciences and RC electronics through the construction of model aircraft. Summer residents may study rapid prototyping through an annual 3-D printed aircraft competition. The club offers company tours and education seminars throughout the year.

Baylor Baja

Dr. Brian Jordon and Dr. Paul Allison, Advisors

Baylor Baja is a student-led organization that allows engineering students to gain hands-on experience researching, designing, manufacturing, and testing a one-seater, off-road vehicle. The Baja team travels to an annual competition to compete against 100 universities from around the globe and defend design decisions to a panel of professional engineers from various car companies. The experiences available through this club help to round out the education you receive in the classroom and prepare you to be successful whether you want to go into industry or onto graduate school.

Society of Plastics Engineers

Dr. David Jack, Advisor

Baylor University's Chapter of the Society of Plastics Engineers is an interdisciplinary professional organization that provides students an opportunity to learn from and be involved with the 20,000-member international organization of leading engineers, scientists and plastics professionals. This organization provides student members access to knowledge of one of the fastest growing industries as well as professional contacts throughout the profession. This organization not only brings to light the impressive research work of both faculty and students on Baylor's campus pertaining to the plastics industry, but it allows both researchers and interested students on Baylor's campus pertaining to the plastics industry, but it allows both researchers and interested students a chance to interact and form relationships with professions within the industry. The major goals of the organization are: to increase interest in the area of plastics engineering, plastics scientists, and professional careers in the industry; to provide opportunities for students to learn about plastics engineering through organized tours, extra-curricular education sessions, and related events that cover topics in these areas; and to provide information about career opportunities in the field of plastics engineering.

Society of Women Engineers

Dr. Anne Spence, Advisor

Baylor University's Student Section of the Society of Women Engineers is open to all engineering and computer science students, both male and female. The goals of the section are:

1. to provide education about the challenges facing female engineers,
2. to create a sense of identity and community,
3. to provide resources for women engineers, and
4. to enhance leadership and professional skills.

These goals are achieved through mentoring relationships, presentations, field trips, and other activities.

Theme Park Engineering and Design at Baylor University

Dr. Jill Klentzman, Advisor

BTPED is a student organization open to all majors and those interested specifically in theme parks. The purpose of this organization is

1. to develop creative thinking, teamwork, communication and friendships while representing Baylor in the Walt Disney Imaginations competition and in the theme park and entertainment industry
2. create professional, educational, and networking opportunities for students through exposure to the industry and participation in experience-building activities, and
3. expose members to resources furthering their knowledge concerning engineering and design.

The major goals of BTPED are: uniting Baylor undergraduates, encouraging creativity, problem solving and cooperation between majors as well as entering the Walt Disney ImagiNations competition.

Theta Tau

Dr. Elon Terrell, Advisor

Theta Tau is the oldest, largest, and foremost Fraternity for Engineers. Since its founding at the University of Minnesota in 1904, over 35,000 have been initiated over the years. With emphasis on quality and a strong fraternal bond, the Fraternity has chapters only at ABET accredited schools and limits the number of student members in any one of its chapters across the nation. The purpose of Theta Tau is to develop and maintain a high standard of professional interest among its members, and to unite them in a strong bond of fraternal fellowship. Activities carried out by Theta Tau include hosting professional industry speaker talks, faculty research and graduate school talks, social events for members, community service philanthropy, providing tours around the engineering school for incoming freshman, and any activity the fraternity feels will best serve Baylor ECS and its students. The national fraternity provides powerful networking opportunities and the ability to connect with many professional and technical individuals and materials that can help jump-start a young engineer's professional career.

Virtual Reality (VR) Club at Baylor University

Dr. Dan Shafer and Tanner Osborne, Advisors

The Baylor VR Club is an organization that revolves around four things: Meeting, Developing, Competing and Streaming. The Baylor VR Club hosts monthly meetings that allow all members to experience different aspects of VR. Meetings typically have a theme such as bringing in a company or hosting a tournament. For development, the Baylor VR Club is currently working with the Baylor Library System to develop a VR museum. The team is part of the Oculus Start Program. Additionally,

the Baylor VR Club is a part of CVRE, a collegiate VR eSports league. We compete against other schools such as UC Berkeley and Miami. Finally, the Baylor VR Club streams its events and has a commentated stream every Thursday Night.

Women in Computer Science

Professor Cindy Fry, Advisor

Baylor's Women in Computer Science (WiCS) is available to all female majors in the Department of Computer Science as well as to other females in STEM fields at Baylor. WiCS is designed to promote community among female computer science majors through discussion and reading groups, in addition to Q&A sessions with professional women in tech industries. In addition to developing community, WiCS is designed to limit attrition among females in the major. Through intentional peer mentorships, 1-2 upper-division females will meet periodically with 2-3 students to talk about courses, challenges, perseverance, and internship/job opportunities with Computer Science.

Student Awards

In addition to numerous campus awards for which engineering and computer science students are eligible, the faculty of the School of Engineering and Computer Science present the following departmental awards:

Computer Science

The Patrick J. Keane Outstanding Computer Science Senior Award

This award recognizes high scholastic achievement and service.

This award is presented annually by the faculty of the Department of Computer Science to a graduating computer science student with a high GPA and a distinguished record of service to the Department of Computer Science.

The Outstanding Computer Science Scholar Award

This award is presented annually to the graduating senior in computer science who ranks highest in the class.

The Outstanding Service Award

This award is presented annually to the graduating computer science major with a distinguished record for service to the Department of Computer Science and Baylor University.

The Outstanding Graduate Assistant Award

This award is presented annually to a graduate assistant in computer science with a distinguished record for service to the Department of Computer Science.

The Outstanding Bioinformatics Senior Award

This award recognizes high scholastic achievement and service.

This award is presented annually by the faculty of the Department of Computer Science to a graduating bioinformatics student with a high GPA and a distinguished record of service.

Outstanding Undergraduate Research Award

This award recognizes an undergraduate with extraordinary research achievements or activities, scientific impact, or other advancements in computer science fields and disciplines.

Outstanding Data Science Scholar Award

This award is presented annually to the graduating senior in Data Science who ranks highest in the class.

Electrical & Computer Engineering

The Outstanding Student Award

This award is presented to a junior or senior Electrical and Computer Engineering student who demonstrates strong scholastic achievement, involvement, and service.

The Outstanding Scholar Award

This award is presented to a junior or senior Electrical and Computer Engineering student for high scholastic achievement.

The Outstanding Leadership and Service Award

This award is presented to a junior or senior Electrical and Computer Engineering student with a distinguished record of leadership and/or service to the department, university, and community.

The Outstanding Research Contribution Award

This award is presented to a junior or senior Electrical and Computer Engineering student for productivity as a researcher in a faculty laboratory or on an undergraduate research project.

The Outstanding Graduate Teaching/Assistant Award

This award is presented to a graduate Electrical and Computer Engineering student for significant contributions to course development or delivery and/or a distinguished record of teaching.

Engineering

The Outstanding Senior Award

This award is presented annually to a graduating student with a high GPA, significant contribution to the senior design project, and a distinguished record of service to the School of Engineering and Computer Science and beyond.

Mechanical Engineering

The Outstanding Scholar Award

This award is presented to a junior and/or senior Mechanical Engineering student in recognition of high scholastic achievement.

The Outstanding Leadership and Service Award

This award is presented to a junior and/or senior Mechanical Engineering student with a distinguished record of leadership and/or service to the department, university, and community.

Scholarships

The scholarships listed below are available to continuing students in the School of Engineering and Computer Science. The application for these funds is sent to students via email during the spring semester and are awarded typically by May 1st. Current Pre-engineering, Computer Science, and Bioinformatics students are eligible to apply for departmental funds through a separate application process during the spring semester. Information about that process can be found at www.ecs.baylor.edu/scholarships (<http://www.ecs.baylor.edu/scholarships/>).

Chairs

McCollum Family Chair in Data Sciences

Mearse Endowed Chair in Biological and Biomedical Engineering

Scholarships

Anonymous Endowed Scholarship Fund in Engineering

Brian & Julie Bammel Family Endowed Scholarship Fund in Electrical & Computer Engineering

Dr. James D. Bargainer, Jr. Endowed Scholarship Fund in Engineering

Baylor Engineering Alumni & Faculty Endowed Scholarship Fund

Baylor University Association of Computer Machinery Scholarship Fund

Dr. Walter Bradley Polymers & Materials ECF

Capstone Mechanical Endowed Scholarship Fund
 Steve B. & Penny Flowers Carlile Endowed Scholarship Fund in Engineering
 Shannon Casteel Memorial Endowed Scholarship Fund in Engineering & Computer Science
 Central Texas Chapter of the Society of Professional Engineers Scholarship Fund
 Computer Science Endowed Scholarship
 Brad C. & Alison F. Crawford Endowed Scholarships Fund in Engineering
 Jennifer and Hal Elrod Endowed Scholarship Fund in Computer Science Engineering Scholarship Fund
 Engineering & Computer Science Scholarship Fund
 Estes Family Endowed Scholarship Fund
 ExxonMobil Employees Endowed Scholarship Fund
 Charles "Court" Franklin Memorial Endowed Scholarship Fund in Mechanical Engineering
 Dr. Donald Gaitros Endowed Scholarship Fund in Computer Science
 John & Ann Iler Endowed Scholarship Fund
 Roy L. & Betty Jacobs Endowed Scholarship Fund
 Dr. Benjamin S. Kelley Endowed Scholarship Fund for the School of Engineering & Computer Science (Sponsored by the ECS Board of Advocates)
 L-3 Endowed Scholarship Fund in the School of Engineering & Computer Science
 Fred Logan Endowed Scholarship Fund in Engineering
 Jim & Marian Lord Endowed Scholarship Fund in Engineering & Computer Science
 Dr. Cedric & Ann Lowrey Endowed Scholarship Fund in Engineering
 Jennifer and Ryan Malone Endowed Scholarship Fund
 William Eldon Mearse Family Endowed Scholarship Fund
 Mark & Carol Measures Endowed Scholarship Fund
 Neill Morris Memorial Scholarship Fund
 R. Bryan Nichols Estate Scholarship Fund
 Dr. & Mrs. James Nolen Endowed Computer & Engineering Science Scholarship Fund
 Dr. Harold E. & Patricia A. Rafuse Endowed Scholarship Fund
 Marcie & Don M. Roberts Baylor Alumni Endowed Scholarship Fund
 Shawn & Julia Sedate Endowed Scholarship Fund in Engineering & Computer Science
 Trent & Sue-Lynn Voigt Endowed Scholarship Fund in Computer Science
 W. James Wilkinson & Sarah Harvey Wilkinson Endowed Scholarship Fund in Engineering & Computer Science
 Willis Family Endowed Scholarship Fund for the Baylor I5 Program
 Willis Family Endowed Scholarship Fund in the School of Engineering & Computer Science
 David & Nancy Hidy Wilson Scholarship Fund

Graduate Programs in the School of Engineering and Computer Science

- I. **Master of Science**
 - Biomedical Engineering
 - Computer Science
 - Computer Science (online)
 - Electrical and Computer Engineering
 - Mechanical Engineering
- II. **Professional Degree**
 - Master of Engineering
- III. **Joint Graduate Degree**
 - Master of Business Administration/Master of Engineering
- IV. **Doctor of Philosophy**
 - Computer of Science

Electrical and Computer Engineering
 Mechanical Engineering

V. **Joint Undergraduate/Graduate Degrees**

Electrical and Computer Engineering Joint Program B.S.E.C.E./M.S.E.C.E.
 Electrical Computer Engineering/Biomedical Engineering B.S.E.C.E./M.S.B.M.E.
 Electrical Computer Engineering/Master of Engineering B.S.E.C.E./M.E.
 Mechanical Engineering Joint Program B.S.M.E./M.S.M.E.
 Mechanical Engineering/Biomedical Engineering B.S.M.E./M.S.B.M.E.
 Mechanical Engineering/Master of Engineering B.S.M.E./M.E.

Engineering Registration (P.E.)

The engineering faculty encourage students to seek registration or licensure as professional engineers (P.E.) during their careers. Consequently, students are encouraged to take the National Council of Examiners for Engineering and Surveying's (NCEES) Fundamentals of Engineering (FE) exam prior to graduation. This test, a comprehensive knowledge exam given nationally, is the first step toward professional registration. Baylor engineering seniors have had an excellent pass rate for this exam.

Accreditation

The Bachelor of Science in Computer Science (B.S.C.S.) degree program is accredited by the Computing Accreditation Commission of ABET.

The following degree programs are accredited by the Engineering Accreditation Commission of ABET (<http://www.abet.org>):

- Bachelor of Science in Electrical and Computer Engineering (B.S.E.C.E.)
- Bachelor of Science in Engineering (B.S.E.)
- Bachelor of Science in Mechanical Engineering (B.S.M.E.)

School of Engineering and Computer Science Faculty and Staff

Name	Title
Daniel J. Pack, Ph.D.	Dean
Michael W. Thompson, Ph.D.	Associate Dean for Undergraduate Programs
Kenneth Van Treuren, D. Phil.	Associate Dean of Research & Faculty Development
Alexandre F.T. Yokochi, Ph.D.	Associate Dean for Research and Graduate Education

Department of Computer Science

Gregory J. Hamerly, Ph.D., Interim Department Chair
 William A. Booth, Ph.D., Assistant Chair
 G. Michael Poor, Ph.D., Graduate Program Director
 Matthew H. Aars, M.S.
 Michael A. Aars, M.S.
 Mary Lauren Benton, Ph.D.
 Tomas Cerny, Ph.D.
 Michael J. Donahoo, Ph.D.
 Matthew W. Fendt, Ph.D.
 Cynthia C. Fry, M.S.
 Henry Han, Ph.D., Endowed Chair of Data Science

Shaun Hutton, M.Div., M.C.S.
 Peter M. Maurer, Ph.D.
 Mark A. McCreary, M.S.
 Pablo Rivas, Ph.D.
 Eunjee Song, Ph.D.
 Gregory D. Speegle, Ph.D.
 Sharon L. Humphrey, Graduate Program Coordinator
 Candace Ditsch, Office Manager

Department of Electrical and Computer Engineering

Kwang Y. Lee, Ph.D., P.E., Chair
 Scott Koziol, Ph.D., Associate Chair
 Keith E. Schubert, Ph.D., Graduate Program Director
 Emmanuel Agamloh, Ph.D.
 Charles P. Baylis, Ph.D.
 Enrique (Erik) Blair, Ph.D.
 Liang Dong, Ph.D.
 William (Mack) Grady, Ph.D., P.E., Fellow of IEEE
 Ian A. Gravagne, Ph.D.
 Jonathan Hu, Ph.D.
 Seunghyun Kim, Ph.D.
 Vincent W. Leung, Ph.D.
 Yang Li, Ph.D.
 Robert J. Marks II, Ph.D., Fellow of IEEE, Fellow of OSA
 Linda J. Olafsen, Ph.D.
 Steven P. Potter, M.S.
 J. Brian Thomas, M.S.
 Michael W. Thompson, Ph.D.
 Annette von Jouanne, Ph.D., P.E., Fellow of IEEE
 Alan X. Wang, Ph.D., The Mearse Chair in Biological and Biomedical Engineering
 Adam Weaver, M.S.
 Michelle L. Aars, Office Manager
 Minnie R. Simcik, Graduate Program Coordinator

Department of Mechanical Engineering

Paul I. Ro, Ph.D., Chair
 Anne Spence, Ph.D., Assistant Chair, Fellow of ASME
 Stephen T. McClain, Ph.D., P.E., Graduate Program Director
 Paul G. Allison, Ph.D., Fellow of ASME
 Joseph Donndelinger, M.S.
 Trevor J. Fleck, Ph.D.
 Brian A. Garner, Ph.D.
 David (Stanton) Greer, M.S.
 David A. Jack, Ph.D.
 Lulin Jiang, Ph.D.
 J. Brian Jordon, Ph.D.
 Benjamin S. Kelley, Ph.D., P.E.
 Taeil Kim, Ph.D.
 Jill Klentzman, Ph.D.
 Byron P. Newberry, Ph.D., P.E.
 Min Young Pack, Ph.D.
 Abhendra Singh, Ph.D.
 Carolyn T. Skurla, Ph.D., P.E.
 Douglas Smith, Ph.D., P.E., Fellow of ASME
 Elon J. Terrell, Ph.D.
 Kenneth W. Van Treuren, D. Phil., Fellow of ASME
 Alexandre F.T. Yokochi, Ph.D.
 Ning Zhang, Ph.D.

Sara Baker, Office Manager
 Jodi Branch, Graduate Program Coordinator
 Ashley LaFrance, Administrative Associate
 James (Ashley) Orr, Manufacturing/Machinery Consultant

Administrative Offices

Office	Contact
Office of the Dean	Cheryl Tucker, M.S.Ed., Assistant to the Dean
Marketing and Communications	Lane Murphy, M.A., Director
ECS Development	Jenna Hoff, M.Div., Director
Financial Information	Ryan Reed, M.B.A., Interim Business Officer
Financial Specialist	Alvaro Garcia, M.B.A., Specialist
Teal Residential College	Nathan Heatherly, M.B.A.
ECS Technology Support	Patrick Hynan, Director
Electronics Systems Manager	Robert A. Baish, Manager
ECS Server Administrator	Patrick Clancy, Server Administrator
Senior Computer Systems Analyst	George Gonzales, Jr., Senior Analyst
Technology Support Specialist	James Johnston
Undergraduate Programs	Angie Henry, Office Manager
Undergraduate Programs	Ida Jamshidi, M.S.Ed., Senior Director of Advising
Undergraduate Programs	Mary Chandler, Academic Advisor
Undergraduate Programs	Megan Glover, M.S.Ed., Coordinator of New Student Recruitment
Undergraduate Programs	John Hewitt, M.Div., Coordinator of Advising and Special Programs
Undergraduate Programs	Sarah Mosley, Coordinator of Advising and Curriculum
Computer Science Graduate Program	Daniel Adams, M.S.Ed., Advising Program Coordinator

Courses in the School of Engineering and Computer Science

Bioinformatics

Code	Title	Hours
BINF 3350	Genomics and Bioinformatics	3
BINF 3360	Introduction to Computational Biology	3
BINF 43C9	Bioinformatics Senior Capstone Project	3

Biomedical Engineering

Code	Title	Hours
BME 4353	Image Formation and Processing	3
BME 4357	Cardiovascular Engineering and Instrumentation	3
BME 4370	Biomaterials: Form and Function	3
BME 4372	Bioinstrumentation	3
BME 4374	Biomechanics	3
BME 4376	Introduction to the Design and Evaluation of Medical Devices	3

BME 4378	Introduction to Biosensors	3
BME 4396	Special Topics in Biomedical Engineering	3
BME 4452	Biomedical Digital Signal Processing	4
BME 4V97	Special Projects in Biomedical Engineering	1-6

Computer Science

Code	Title	Hours
CSI 1337	Introduction to Video Game Design	3
CSI 1401	Introduction to Programming I	4
CSI 1402	Introduction to Programming II	4
CSI 1430	Introduction to Computer Science I with Laboratory	4
CSI 1440	Introduction to Computer Science II with Laboratory	4
CSI 1V90	Special Topics in Freshman Computer Science	1-4
CSI 2300	Introduction to Data Science	3
CSI 2334	Introduction to Computer Systems	3
CSI 2350	Discrete Structures	3
CSI 3303	Information Technology	3
CSI 3324	Numerical Methods	3
CSI 3334	Data Structures	3
CSI 3335	Database Design and Applications	3
CSI 3336	Systems Programming	3
CSI 3338	Computer Organization	3
CSI 3342	Principles of Software Design	3
CSI 3344	Introduction to Algorithms	3
CSI 3371	Software Engineering I	3
CSI 3372	Software Engineering II	3
CSI 3373	Software Quality Assurance and Testing	3
CSI 3374	Software Project Management	3
CSI 3439	Computer Architecture	4
CSI 3471	Software Engineering I	4
CSI 3V90	Special Topics in Intermediate Computer Science	1-4
CSI 3V95	Internship Experience	1-3
CSI 4010	Undergraduate Research Seminar	0
CSI 4111	Cybersecurity Laboratory	1
CSI 4144	Competitive Learning	1
CSI 4301	Cultural Impact of the Computer	3
CSI 4321	Data Communications	3
CSI 4322	Numerical Analysis	3
CSI 4323	Introduction to Cybersecurity	3
CSI 4325	Advanced Cybersecurity	3
CSI 4328	Numerical Linear Algebra	3
CSI 4330	Foundations of Computing	3
CSI 4335	Database Design I	3
CSI 4337	Introduction to Operating Systems	3
CSI 4341	Computer Graphics	3
CSI 4342	Gaming Platform Frameworks	3
CSI 4344	Object-Oriented Development	3
CSI 4352	Introduction to Data Mining	3

CSI 43C9	Capstone Design Project	3
CSI 4V96	Special Topics in Computer Science	1-9

Data Science

Code	Title	Hours
DSC 2334	Computing and Computer Fundamentals	3
DSC 2350	Discrete Structures for Data Science	3
DSC 3310	Cloud Computing	3
DSC 3334	Algorithms and Data Structures	3
DSC 3335	Database Design and Applications for Data Science	3
DSC 3344	Analytics for Machine Learning	3
DSC 4310	Machine Learning	3
DSC 4320	Data Visualization	3
DSC 4354	Cybersecurity for Data Science	3
DSC 43C8	Big Data	3
DSC 43C9	Data Science Capstone	3
DSC 4V96	Special Topics in Data Science	1-3

Engineering and Computer Science

Code	Title	Hours
ECS 1101	ECS Leadership Development Seminar	1
ECS 2101	ECS Professional Development	1

Electrical and Computer Engineering

Code	Title	Hours
ELC 2130	Electrical Circuit Laboratory	1
ELC 2137	Digital Logic Design Laboratory	1
ELC 2320	Electric Circuit Theory for non-ECE majors	3
ELC 2330	Electrical Circuit Theory	3
ELC 2337	Digital Logic Design	3
ELC 2V97	Special Topics or Project	1-3
ELC 3114	Electronic Design Laboratory	1
ELC 3314	Electronic Design	3
ELC 3331	Electrical Networks and Systems	3
ELC 3335	Signals and Systems	3
ELC 3336	Microprocessor Systems	3
ELC 3337	Applied Electromagnetic Fields	3
ELC 3338	Computer Organization	3
ELC 4311	Advanced Logic Design	3
ELC 4318	Avionics System Design	3
ELC 4320	Introduction to Optics	3
ELC 4321	Computational Photonics	3
ELC 4322	Integrated Photonics	3
ELC 4323	Solid-State Materials	3
ELC 4324	Semiconductor Devices	3
ELC 4325	Fundamentals of Lasers	3
ELC 4329	Introduction to Microfabrication	3
ELC 4330	Introduction to Robotics	3
ELC 4331	Electric Machines and Drives	3
ELC 4332	Automatic Control Systems	3
ELC 4335	Systems Modeling and Control	3
ELC 4340	Power Systems	3

ELC 4345	Power Electronics	3
ELC 4350	Principles of Communication	3
ELC 4351	Digital Signal Processing	3
ELC 4353	Image Formation and Processing	3
ELC 4357	Cardiovascular Engineering and Instrumentation	3
ELC 4360	Software Systems	3
ELC 4362	Wireless Sensor Networks	3
ELC 4366	Quantum Mechanics for Engineers	3
ELC 4367	Introduction to Quantum Computing	3
ELC 4372	Bioinstrumentation	3
ELC 4377	Solar Energy	3
ELC 4378	Introduction to Biosensors	3
ELC 4381	Antennas and Wireless Propagation I	3
ELC 4383	RF/Microwave Circuits I	3
ELC 4384	RF/Microwave Circuits II	3
ELC 4396	Special Topics in Electrical or Computer Engineering	3
ELC 4438	Embedded Systems Design	4
ELC 4V97	Special Projects in Electrical or Computer Engineering	1-6

Engineering

Code	Title	Hours
EGR 1101	Engineering New Student Experience	1
EGR 1301	Introduction to Engineering	3
EGR 1302	Introduction to Engineering Analysis	3
EGR 2108	Engineering Economics	1
EGR 2170	Introduction to Computer Aided Design	1
EGR 2V97	Special Topics or Project	1-3
EGR 2V99	Engineering Research Activities	1-3
EGR 3115	International Project Experience	1
EGR 3302	Technologies for Developing Countries	3
EGR 3305	Social and Ethical Issues in Engineering	3
EGR 3315	Ethics of International Service	3
EGR 3380	Engineering Design I	3
EGR 3V95	Internship Experience	1-3
EGR 4301	Global Business: Economics and Communication	3
EGR 4357	Cardiovascular Engineering and Instrumentation	3
EGR 4360	Renewable Energy Devices	3
EGR 4361	Conventional & Alternative Energy Systems	3
EGR 4375	Elements of Nuclear Engineering	3
EGR 4376	Radiation Dosimetry in Nuclear Health Physics	3
EGR 4390	Engineering Design II	3
EGR 4396	Special Topics in Engineering	3
EGR 4V97	Special Projects in Engineering	1-6

Mechanical Engineering

Code	Title	Hours
ME 2320	Statics	3
ME 2321	Dynamics	3

ME 2345	Thermodynamics	3
ME 3122	Materials and Manufacturing Processes Lab	1
ME 3145	Thermal/Fluids Laboratory	1
ME 3320	Strength of Materials	3
ME 3321	Fluid Mechanics	3
ME 3322	Mechanical Engineering Materials and Manufacturing Processes	3
ME 3323	Machine Design	3
ME 3345	Thermodynamics II	3
ME 3420	Instrumentation and Measurements	4
ME 4305	Sustainable Engineering	3
ME 4320	Computer-Aided Structural Analysis	3
ME 4322	Computer-Aided Engineering and Design	3
ME 4323	Mechanical Vibrations	3
ME 4324	Introduction to Finite Element Methods	3
ME 4325	Dynamic Systems	3
ME 4327	Numerical Methods for Engineers	3
ME 4330	Introduction to Robotics	3
ME 4335	Mechanical Engineering Laboratory	3
ME 4336	Thermal Systems Design	3
ME 4337	Introduction to Computational Fluid Dynamics	3
ME 4339	Tribology	3
ME 4344	Composite Materials	3
ME 4345	Heat Transfer	3
ME 4346	Introduction to Aeronautics	3
ME 4347	Analysis and Design of Propulsion Systems	3
ME 4349	Aircraft Structural Analysis	3
ME 4350	Aircraft Flight Dynamics and Control	3
ME 4356	Introduction to Space Flight	3
ME 4357	Cardiovascular Engineering and Instrumentation	3
ME 4360	Renewable Energy Devices	3
ME 4364	Introduction to Additive Manufacturing	3
ME 4377	Solar Energy	3
ME 4382	Selection of Materials and Manufacturing Processes in Design	3
ME 4384	Engineering with Plastics	3
ME 4385	Failure Analysis and Product Liability	3
ME 4386	Properties and Processing of Electronic Materials	3
ME 4388	Corrosion and Sustainable Metallurgy	3
ME 4396	Special Topics in Mechanical Engineering	3
ME 4V97	Special Projects in Mechanical Engineering	1-6

Foreign Language and Culture Distribution List for ECS

Foreign Language and Culture Distribution List for ECS

Code	Title	Hours
ANT 1305	Introduction to Anthropology	3
ANT 1306	Cultural Anthropology in Global Context	3

ANT 1325	Introduction to Global Health	3	KOR 2320	Intermediate Korean II	3
ANT 3301	Science, Society, and Culture	3	LAS 1301	Latin American Nations and People	3
ANT 3340	Indigenous Cultures of Modern Mexico and Central America	3	LAS 2301	An Introduction to Latin American Studies	3
ANT 3350	Native North Americans	3	LAT 2320	Intermediate Latin Poetry	3
ANT/AST 4310	Societies and Cultures of East Asia	3	LING/ENG 3319	Language and Culture	3
ANT/GEOG 1310	Cultural Geography	3	MES 2301	Introduction to the Middle East	3
ANT/SOC 4320	Culture, Personality and Identity	3	MUS 3321	Music in World Cultures	3
ARB 2320	Arabic Popular Culture	3	MUS 4361	Traditional Music and Culture in Africa	3
AST 2380	The Peoples and Culture of Asia	3	MUS/AST 4362	Traditional Music and Culture in Asia	3
AST/HIS 3305	Traditional China	3	MUS/LAS 4364	Traditional Music and Culture in Latin America	3
AST/HIS 3307	Japan	3	PHI 4331	Latin American Philosophy	3
AST 4388	Contemporary Chinese Society and Culture	3	PHI 4341	Contemporary Continental Philosophy	3
BIC 4374	World Cultures V: Differing Visions and Realities	3	POR 2320	Exploring the Portuguese-Speaking World	3
CHI 2320	Intermediate Chinese for Communication	3	PSC 3315	Fundamentals of International Politics	3
CHI 3305	Chinese for Business I	3	PSC 4303	International Human Rights	3
CHI 3306	Chinese for Business II	3	PSC 4304	Governments and Politics of Latin America	3
CHI 3310	Chinese Language and Culture through Films	3	PSC 4305	International Law	3
CLA 3301	Roman History and Civilization	3	PSC 4314	Government and Politics of Mexico	3
CLA 3302	Greek History and Civilization	3	PSC/AST 4325	Asian International Relations	3
FAS 1311	Freshman Academic Seminar: Modern Languages, Cultures, and Global Communities	3	PSC 4334	Governments and Politics of the Middle East	3
FRE 2320	Passport to the French-Speaking World	3	PSC 4344	Government and Politics of Russia	3
FRE 2321	French for Health Professions	3	PSC 4365	International Political Economics	3
FRE 3301	Advanced French Grammar	3	PSC/AST 3314	Politics and Problems of Developing Countries	3
FRE 3302	Conversational French	3	PSC/AST 4364	The Governments and Politics of the Asia-Pacific Region	3
FRE 3308	French and Francophone Pop Culture	3	PSC/AST 4374	Governments and Politics of East Asia	3
FRE 3310	Introduction to French Literature	3	REL 4343	Topics in Islam	3
FRE 3330	Introduction to French Cinema	3	REL 4347	Topics in African Religions	3
FRE/FDM 4330	Survey of French Cinema	3	REL 4348	Modern Judaism	3
GER 2320	German for Modern Life	3	REL/AST 3345	World Religions	3
GER 3301	German Conversation and Composition	3	REL/AST 4346	Topics in Asian Religions	3
GER 3341	Introduction to German Culture: Germany in the Making	3	RUS 2320	Russian Culture in Context	3
GER 3345	Introduction to German Film: German Culture from Berlin to Hollywood	3	RUS 3301	Russian Conversation and Composition	3
GRK 2320	Intermediate Greek Poetry	3	SEES/HIS 2380	Introduction to Slavic and East European Studies I	3
HEB 2320	Intermediate Hebrew II	3	SEES/HIS 2381		3
ITA 2320	Pathways in Italian Culture	3	SOC 3318	Mexican-Americans in U.S. Society	3
ITA 3301	Advanced Italian Grammar	3	SPA 2304	Intermediate Spanish for Heritage Speakers	3
ITA 3302	Italian Conversation, Reading, and Composition	3	SPA 2320	Exploring the Spanish-Speaking World	3
ITA 3310	Introduction to Italian Literature	3	SPA 2321	Intermediate Spanish for Health Professions	3
ITA 3330	Italian Through Film	3	SPA 2322	Spanish for Christian Ministry	3
JPN 2320	Exploring Japan	3	SPA 2324	Spanish for Business	3
JPN 3301	Advanced Japanese I	3	SPA 3302	Conversation and Composition	3
JPN 3302	Japanese Culture through Reading	3	SPA 3309	Introduction to Spanish Linguistics	3
JPN 3305	Japanese for the Professions	3	SWA 2320	Intermediate Swahili II	3
JPN 3306	Japanese Cinema	3	THEA/JPN 3352	Japanese Theatre and Culture	3
JPN/THEA 3352	Japanese Theatre and Culture	3			

ECS Degrees

- Computer Science and Informatics (<https://catalog.baylor.edu/undergraduate/school-engineering-computer-science/computer-science-bscs-informatics-bsi/>)
- Engineering (<https://catalog.baylor.edu/undergraduate/school-engineering-computer-science/engineering/>)

ECS Minors

All students pursuing an ECS minor should be advised by the School of Engineering & Computer Science to ensure they are completing appropriate courses for the minor. Exclusions may apply to electives.

- Computer Science Minor (<https://catalog.baylor.edu/undergraduate/school-engineering-computer-science/ecs-minors/computer-science-minor/>)
- Data Science Minor (<https://catalog.baylor.edu/undergraduate/school-engineering-computer-science/ecs-minors/data-science-minor/>)
- Engineering Minor (<https://catalog.baylor.edu/undergraduate/school-engineering-computer-science/ecs-minors/engineering-minor/>)